gravels of the Chaudiere valley, which are among the few profitable placer grounds of eastern America. Although but a cursory examination, this study suggests many interesting points for future inquiry. Appended to this report are some notes on the microscopic structure of certain rocks of the Quebec group, by Mr. F. D. Adams. They seem to be careful studies; but, there being no figures of the sections from which the microscopic researches were made, they suggest little comment.

The first of the assistants' reports is that of Dr. G. M. Dawson, on the geology of the Bow and Belly river region, north-west territory. It contains a very interesting account of the coals of the Laramie epoch, which are of exceeding value to the north-western region. Although in its nature a preliminary report, it contains a large amount of valuable detailed information concerning these coals. Although essentially lignites, they are superior to the most of such deposits now in use in Europe. This report is illustrated by several rather coarse lithographs, showing interesting aspects of this district.

The next report is one by Dr. Robert Dell, on the geology of the basin of Moose River and Lake of the Woods, with two heliotypes of scenery, and two maps. This report is of a very preliminary nature. In its nine pages of text, only enough is given to show that the region is full of interesting problems. The accompanying maps show the general distribution of the Laurentian and Huronian rocks, but the information is only a matter of outlines. It has, however, a special economic interest, as it indicates a possibly new gold-field, and, what is perhaps of more importance, a prospect of extensive apatite deposits in this district. Appended to the report is a catalogue of plants and of coleopterous insects, the latter by the late Dr. LeConte. Next there are two considerable reports by Mr. R. W. Ellis, on the geology of northern and eastern New Brunswick, and the north side of the Bay of Chaleurs, and on the geology of the Gaspé peninsula. Both these reports concern very interesting regions, which have previously been described in a general way. In them a great many contributions are given to the general structural, as well as the economical geology, of these districts. There are interesting lists of fossils from the several members of the paleozoic series. We miss the detailed sections which are obtainable in this country, which would have greatly added to the value of the report.

Next there is a report on some of the mines of the Province of Quebec, by Charles W. Willemott. Except the apatite mines of the Gatineau district, these deposits do not seem to have much value. For the apatite deposit, there seems to be a large future. Accounts of the several mines are extremely brief, and have not much economic or scientific value. The volume ends with a report of Mr. G. Christian Hoffman, entitled "Chemical contributions to the geological survey of Canada, from the laboratory of the survey." It consists of about fifty determinations of various substances of presumed economic or scientific interest, with various remarks as to their value in the arts, only one of them of general interest; viz., a careful analysis of the mineral smarskite, newly found in Canada. This branch of the work of the survey has been put out of gear by the removal of the laboratory from Montreal to Ottawa. As a whole, these reports, covering as they do the work of three years, are rather disappointing. The survey has an annual grant of sixty thousand dollars. Much is to be allowed for the difficulties arising from the size and complications of the field with which it deals; still, it seems as if more in the way of definite economic and scientific results should be attained with this liberal expenditure.

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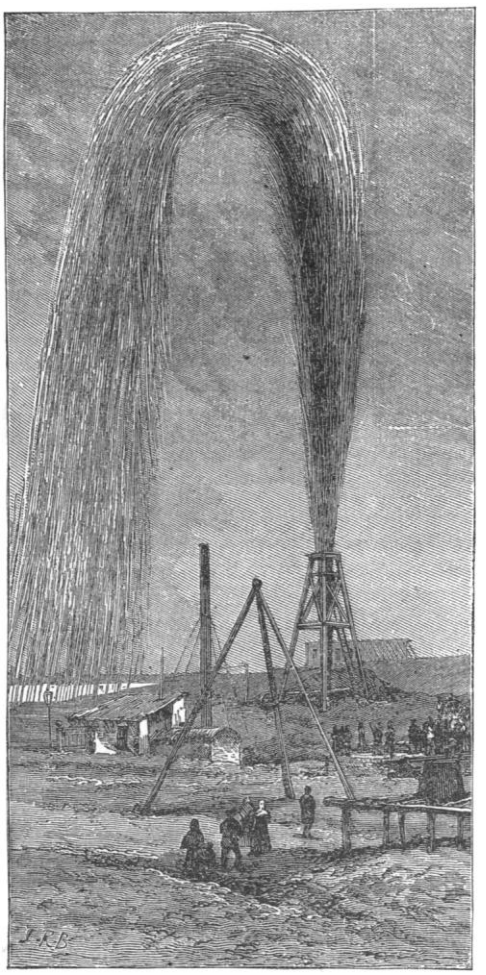
## *NOTES AND NEWS.*

WE take the following 'editorial note' from the September number of the *American meteorological journal* as suggesting a simple plan of work in which many non-professional observers might contribute a willing share toward the solution of important problems: "Is it not worth while to consider whether the deficiency of observations on local storms, which makes the determination of their action doubtful, could not be remedied by appointing special days on which hourly or bi-hourly observations should be taken, with additional records at still more frequent intervals when any change in the condition of the air required it? These special days might be on certain pre-arranged dates, 'term days,' so called, when the records would gather up any thing that happened to come along in the passage of the weather; but they would better serve the purpose here in view if they were really specially appointed by the signal-service officers only a day or two before their date. It is evident enough from an inspection of Finley's maps, and from a brief study of summer thunder-storms, that the southern side or south-eastern quadrant of our passing cyclones contains the greatest share of local disturbances. Let the plan be published in advance by circulars and newspaper paragraphs; and then, if, while a cyclone was still beyond the Rocky Moun-

tains, the day of its arrival over the upper lakes could be foretold, there might be thirty to sixty hours telegraphic notice given of the appointment of such a day for special observation over the whole region east of the Mississippi. The notice should properly take a somewhat striking form, so as to excite an interest in the attempt among persons who would ordinarily let the weather-changes pass by unnoticed; the newspapers and railroads could be in nearly all cases counted upon to aid in spreading the news of the appointment; and even if the general records gave only the direction and estimated force of the winds, and beginning and ending of rainfall, two or three special days of observation in June or July might produce a wonderful fund of material for study."



— Among the recently discovered petroleum-wells at Bakou, Russia, was one which for four or five days after opening threw a stream of oil into the air to a height of forty feet. The natives were so impressed that they built a temple especially for the veneration of the well. The wiser speculator has expended his energies in building a railroad from Bakou to Batoum on the Black Sea, and contemplates the construction of a canal fifty miles long, by which a river of oil may flow from the Caspian to the Black Sea. We reproduce from *Science et nature* an illustration showing the fountain of oil, copied from a photograph.

— Lieut. Stoney, U.S.N., commanding the U.S. exploring-schooner Ounalaska, has been heard from under date of July 6, when he had reached latitude 66° 4′ north, and longitude 168° 15′ west. Upon leaving St. Michaels, Lieut. Stoney stood north along the American coast until June 27, when ice was encountered fifteen miles to the northward of Sledge Island, in latitude 64° 22′ north, longitude 166° 25′ west. After several unsuccessful attempts to penetrate the ice, which proved to be very heavy at this point, the Ounalaska was headed to the southward until clear water was reached, when the ice to the westward was skirted just to the north of St. Lawrence Islands, and St. Lawrence Bay was reached June 30. Learning that Kotzebue Sound was closed, Lieut. Stoney anchored, and waited for the ice to commence moving, and, after a four-days' gale from the south, he ran over and anchored under East Cape, where he remained, to take advantage of the first opening of Horham Inlet, when the exploration of Putnam River would be continued.

— The Italian papers announce what appears to be an important discovery just made in Sicily. Petroleum has been 'struck' in the province of Palermo. A grotto in the flank of a mountain was pierced, and in twenty-four hours seventy pints were collected. The crude oil is said to be of very high quality, and is so limpid that it may be used with little or no refinement. The borings are being pushed forward very rapidly, and their results are looked forward to with no little interest. Hitherto, we believe, Italy has produced no mineral oil; and if, as seems likely, the new springs should prove productive on a large scale, the kingdom will possess an entirely new and important source of wealth. It should be added, that the present discovery is the result of a number of repeated but hitherto unsuccessful searches after petroleum.

— It has been announced at the hygienic congress held in August at the Hague, that the prize of two thousand francs, offered by the London society for the prevention of blindness, is awarded to Professor Ernest Fochs of Liége. The next hygienic congress will be held in Vienna.

— An interesting collection of antiquities from Cyprus is now on view in London. It includes beautiful specimens of ancient glass, some remains of pottery, a bronze mirror with a piece of the original cloth it was wrapped in, and some ancient armor. There are also some silk and cotton fabrics, such as are still made at Cyprus, some of which are both cheap and pretty. They are made on the simple hand-looms which are still used by the Cypriotes as in days of old.

—Dr. Ferd. Löwl, of the German university at Prag, has just completed a valuable *résumé* of observations and theories on the making of valleys (Ueber thalbildung, Dominicus, Prag, 1884, 136 p., with many cuts), that should prove of special value to American students of physical geology and geography. It will serve well as a guide to the German literature on the subject. The contrast is well brought out between the older theory that referred the beginning of valleys to splits and cracks in the earth's crust, and the newer that regards them as chiefly independent of these guides; and numerous examples are mentioned to show, that valleys are not only formed in unbroken rocks, but also, that, where the rocks are greatly faulted, the valleys run almost independent of the fault-lines. The origin of cross-valleys, on which the author had written previously (*Science*, i. 325), is again discussed, and carried to a conclusion adverse to that reached by Powell, Tietze, and Medlicott. The views of Rütimeyer and Stein, as to the revelation of old base-levels in the terraced slopes of Alpine valleys, are disputed chiefly because direct elevatory movement, by which the base-level is changed, is not any longer to be admitted in modern geology; and the cañons of the Colorado are referred chiefly to climatic conditions. While we cannot accept these conclusions, the book deserves careful study.

— The recent visit of Dr. C. V. Riley to Europe, on a mission from the Agricultural department, is noticed in a recent number of *Nature*, which says that during his two months' sojourn in Europe he has twice been on the continent, and has visited correspondents and acquaintances both there and in England, examining the insect collections in various museums, and especially at South Kensington. He speaks favorably of the lasting influence for good which the International forestry exhibition at Edinburgh will have, and of the Serrel serigraph, — an American invention, which has of late years been perfected in Lyons, and which he thinks is destined to revolutionize silk-reeling and profoundly influence silk-culture, which is just now attracting unusual attention in America. He was also much interested with the investigations into the life-habits of the Aphididae that are being carried on by Jules Lichtenstein at Montpellier, and with the thoroughness with which the French authorities encourage experimental research in advanced agriculture. He received a warm welcome at Montpellier, whither he went at the invitation of the French minister of agriculture to explain some new methods of dealing with the Phylloxera, and where he found his own recommendations of previous years so fully carried out. He was also surprised at the very extensive and successful experiments with American vines carried on at Pageset, near Nîmes. At a meeting of the Société d'agriculture d'Hérault, held on June 30, he read a paper entitled "Quelques mots sur les insecticides aux États-Unis, et proposition d'un nouveau remède," which appears in full, with an account of the discussion, etc., in *Le Messager agricole* for July 10, 1884. The 'new' remedy is kerosene emulsion, which has been successfully used, especially against Coccidae, in the United States. Its application against the Phylloxera is recommended in much the same manner as is used with regard to sulpho-carbonate of potassium. The proportions recommended are three hundred or four hundred grams of the emulsion in forty litres of water.

— A new feature in the German market is Caucasian petroleum. The first sixteen wagon-loads of petroleum by the Marienburg-Mlawbraer railway recently crossed the German frontier, and sixty more are to follow. The German-Russian naphtha-import company has acquired land on the frontier at Illowo, and here three reservoirs holding seventy-five wagon-loads each are set up; from these reservoirs the petroleum is to be pumped by steam-power into the German wagons.

— The mineral wealth of the Weser hills is becoming more clearly recognized in Germany. Ironstone beds have recently been found in several places, which seem to be connected and to form one long vein.

— Efforts to cultivate the tea-plant are now being made in several parts of Europe. In France, on the lower Loire, the plants have been extensively set; but it is still a question whether the leaves will retain their characteristic aroma on a foreign soil. In Sicily the plants set three years ago at Messina are strong and healthy, and have flourished in leaf and seed. Russia has also made the attempt, the first planting being at ten versts from Aleschbri on the Dnieper, and proving satisfactory; and plants have also been sent from Odessa to Suchum. In Germany the Silesian committee of agriculture have received seed and directions from Professor Göppert of Breslau, with a recommendation to attempt their cultivation.

— The second part of the *Zeitschrift für wissenschaftliche mikroskopie*, etc., confirms our favorable opinion formed by the examination of the first number of the new journal, and we think the publication will soon become indispensable to active workers with the microscope. Microscopy is no longer the simple undertaking of a few years ago, but an art, manifold and elaborate in both its principles and its methods. Indeed, no one can be in the front rank of discovery in those fields where the microscope is the essential instrument of investigation, unless acquainted with the most recent advances of microscopical technique. The new Zeitschrift will be valuable, because it is to be the central repertorium for gathering and rendering accessible the improvements of the microscopist's art. We praise the periodical in question, because it does well what it undertakes to do.

We have to notice also another new journal, the *Recueil zoologique suisse*, comprising, according to title-page, "l'embryologie, l'anatomie et l'histologie comparées, la physiologie, l'éthnologie, la classification des animaux vivant ou fossiles." It is edited by Dr. Hermann Fol, with the collaboration of a number of his compatriots. It appears in parts of from a hundred to a hundred and fifty pages each, at irregular intervals. Four will form a volume of five or six hundred pages, with from twenty to twenty-five plates, in octavo. It is expected that the volumes will

be annual. The journal is published by H. Georg at Geneva. The price of the first volume has been fixed at twenty-five francs, but will be raised to forty francs as soon as completed. Three parts of the first volume have already appeared, and show by the character of their contents that the Recueil ranks from the start with the best of the zoölogical journals. Part third contains papers by Schiff on lymphatic hearts, Fol on a human embryo of 5.6 millimetres, Keller on Medusae, Sabatier on the cells of the follicle of tunicates, Flesch on a parasite of the horse, and Bedot on the central organ of Vellela. The plates and the typography are both excellent.

— Dr. C. C. Parry is now in England, examining the methods used in the care of European herbaria, and studying his favorite genera of plants as represented in the botanical storehouse at Kew.

— The hitherto rare shells, Helix facta and Binneia notabilis, have recently been found abundant on the volcanic island of Guadaloupe, off the Lower Californian coast, by G. W. Dunn. The curious Binneia, with a body much larger than its shell, envelops itself in aestivating in a case of material similar to the hibernacula of other land shells. The fauna and flora of this isolated island are largely southern Californian, rather than Mexican. Its beautiful cypress has been found near San Diego, its pine is Californian, while its palm is of a peculiar Lower Californian genus that extends to near the United-States boundary.

— The piece of the Calais-Dover cable shown by Mr. Crampton at the meeting of section D of the American association (see p. 324) was part of the cable laid thirty years ago, but was cut from the cable in 1859.

— Botanical collectors are active this season in developing the flora of unexplored portions of the south-west; paying especial attention to the rich fields of Arizona, New Mexico, and Sonora in old Mexico. The dry, desert fields of 1883 have been blossoming like the rose, and offering them unexcelled facilities.

— Baron Nordenskiöld has prepared for publication a volume containing all the results of his arctic work up to the present time; and an English translation of it will probably be published in the course of the present year. The rumor has been revived in the English papers, that his next important enterprise will be an expedition to the south pole; and it is certain that the question of the feasibility of such an exploit has been brought under his notice. Dr. Oscar Dickson has, however, informed his scientific friends in London, that he will have nothing to do with an antarctic expedition; but they are of opinion that he may reconsider his determination.

— A work on Lapland and the Lapps, similar in character to Mr. du Chaillu's 'Land of the midnight sun,' has been prepared by Dr. Trombolt, a Swedish *savant*, who some time ago visited that region to watch the aurora borealis. Dr. Trombolt lived in the closest intimacy with the Lapps; and the results of his observations, scientific and social, are about to be given both to the Swedish and to the English public, a translation of the work having been prepared by a Swedish gentleman resident in England, who is familiar with English.

— The French northern railway company has begun experiments on motive-power generated by electricity, at the Chapelle station. The company has established an electric lift with two Siemens electro-magnetic machines; one for elevating the weight, and the other for moving the machinery alongside the railway.

— Mr. G. F. Harrington, J. P., of Ryde, Isle of Wight, has tried a method of sewer-ventilation, by means of shafts placed at intervals of about five hundred feet, which are connected with the sewers, and carried up the sides of the adjoining houses. While one shaft conducts air into the sewer, the other carries it away. The in-draught shaft is surmounted by a cowl, which is so designed as to have its face constantly presented to the wind, and through this a stream of air is said to be always passing into the sewer; the return-shaft being open at a good height.

— Unfavorable reports have been received of the expedition of the Italian traveller Bianchi. He intended to work a direct way from Abyssinia to the Red Sea; but on reaching Mehallé at the end of March he was deserted by his escort, and obliged to return. After re-organizing his caravan he reached Danakil-land on April 30, and has since been reported as stopped between Lale and Zula by want of water; but the Italian government has received contradictions of this report from Aden and Assab.

— Dr. Richardson's experiments for the painless extinction of animal life have been brought to a successful termination. The electric shock did not prove sufficiently safe, so Dr. Richardson sought for an anaesthetic agent which would make death rapid as well as painless. He successively experimented with nitrous and carbonic oxides, ether, chloroform, coal-gas combined with chloroform, all of which more or less fulfilled their end. The results have been very satisfactory, as carried out at the London home for lost dogs, where a chamber was charged with carbonic oxide, the gas having been previously passed over a porous surface, from which it took up vapor containing chloroform. Into this chamber was introduced a cage containing the dogs, which in a very short time passed from life to death in a profound sleep, without evincing the slightest pain or consciousness. Dr. Richardson has also administered the same narcotizing agent to sheep, so as to allow of their being killed in a perfectly painless manner; and he hopes that before long there will not be an abattoir in England without facilities for employing the system.

— The Society of the red cross has instituted some experiments with the electric light as an aid in the search for wounded on the field. An exhibition of the experiment was made during the recent meeting of the society at Geneva, but proved a disappointment to the spectators on account of the full moon which was shining at the time.